

In the Claims:

1. (currently amended) A drilling mud reclamation system comprising:
 - (a) a mud inlet line adapted to be connected to a source of solids-laden drilling mud;
 - (b) a first stage centrifuge provided with the mud from the source for separating the heavy weight solid components from the mud and forming a first stage liquid discharge, wherein the first stage liquid discharge is input into a surge tank and the surge tank connects through an outlet valve to the second stage centrifuge;
 - (c) a second stage centrifuge provided with the first stage liquid discharge for removing lighter weight solid components in the first stage liquid discharge and for forming a second stage liquid discharge and a second stage solids discharge defining a weight;
 - (d) a mass flow sensor for measuring weight of the second stage solids discharge; and
 - (e) a flow rate sensor for measuring the flow rate of first stage liquid discharge through the second stage centrifuge.
2. (currently amended) The system of claim 1 including first and second stage pumps connected to ~~the~~ respective inputs of said first and second stage centrifuges.
3. (canceled)

4. (currently amended) The system of claim 3 1, further comprising a sensor for measuring liquid level in the surge tank.

5. (original) The system of claim 1, wherein the mass flow sensor communicates with the second stage liquid discharge from the second stage centrifuge, and wherein the mass flow sensor comprises:

- a. a liquid receiving tank;
- b. a liquid level indicator for indicating liquid level in the liquid receiving tank;
and
- c. a weight sensor to measure the weight of the liquid in the tank.

6. (original) The system of claim 5, wherein the mass flow sensor is adapted for a determination of the difference in solids into and out of the second stage centrifuge.

7. (original) The system of claim 5, wherein the liquid receiving tank is mounted for axial rotation
on an axis.

8. (original) The system of claim 1, wherein the second stage centrifuge forms a second stage solids discharge and the mass flow sensor communicates with the second stage solids discharge.

9. (original) The system of claim 8, further comprising a cuttings drier to receive the second stage

solids discharge and to remove liquid from the second stage solids discharge.

10. (currently amended) The system of claim 9, further comprising:

- a. first and second stage pumps connected to ~~the~~ respective inputs of said first and second stage centrifuges; and
- b. a central processor for monitoring and controlling the first and second stage centrifuges, the first and second stage pumps, and the cuttings drier.

11. (original) The system of claim 1, further comprising a central processor for monitoring and controlling the operation of the first and second stage centrifuges.

12. (original) The system of claim 2, further comprising a central processor for monitoring and controlling the operation of the first and second stage pumps.

13. (currently amended) The system of claim 12, wherein the central processor controls the operation of the second stage pump at the point in its operational characteristic for ~~the~~ maximum removal of lighter weight solid components from the drilling mud.

14. (original) The system of claim 13, further comprising a first mud flow sensor on the first stage pump and a second mud flow sensor on the second stage pump.

15. (original) The system of claim 14, wherein the central processor is adapted to calculate the quantity of low gravity solids removed by the reclamation system based on the mud flow sensed by the second mud flow sensor and the weight of solids removed by the second stage centrifuge as sensed by the mass flow sensor.

16. (original) The system of claim 15, wherein the central processor is further adapted to calculate economic savings from the quantity of drilling mud which need not be added to the system for dilution purposes.

17. (original) The system of claim 15, wherein the central processor is further adapted to modify the operation of the second stage centrifuge based on the mud flow sensed by the second mud flow sensor and the weight of solids removed by the second stage centrifuge as sensed by the mass flow sensor.

18. (original) The system of claim 12, further comprising:

- a. means for determining the quantity of high gravity solids removed by the first stage centrifuge; and
- b. wherein the central processor is adapted to vary the bowl speed of the first stage centrifuge to maximize the high gravity solids content of the first centrifuge solids discharge.

19-26. (canceled)